

4512 Harper Ferry NW
Albuquerque, New Mexico 87120
March 19, 2003

Mr. Devin Kennemore
Tetra Tech, Inc.
502 W. Cordova, Suite C
Santa Fe, NM 87505

Dear Mr. Kennemore:

This letter is written in response to your letter dated March 7, 2003 concerning the Buckman Supplemental Wells Environmental Assessment. Our comment is as follows:

We wish to ensure that the attached Agreement between Mr. Abelino Ortiz (my father) and the Public Service Company of New Mexico will be honored by the City of Santa Fe.

Comment # 1-1

Page 2. 1.3 Relationship to Statutes, Regulations, or Other Plans

This paragraph addresses OSE Permit No. RG-20516 which is also addressed in the above referenced Agreement. We want to ensure that any potential affects to the "Ortiz Well" will be complied with as stipulated in the Agreement.

Comment # 1-2

We appreciate hearing from you regarding this matter. Should you have any questions, I may be reached at 922-9195.

Sincerely,


Lillian Ortiz Walker

Response to Comments

Response to Comment # 1-1:

- Walker's request is for the City to honor the agreement regarding impairment to the Ortiz well (permit number RG6128). Should the OSE find that an impairment has occurred, the City will honor the agreement.

Response to Comment # 1-2:

- Regarding possible effect on the Ortiz well, drawdown impacts were evaluated and presented as part of the March 7, 2003 EA, as shown in Tables 3-1, 3-2 and summarized in Table 3-4. Note that both the original well and what appears to be the replacement well (permit number RG6128CLW) are included in these tables.
- If there is a substantial adverse effect, the City of Santa Fe intends to pursue a mutually acceptable mitigation measure, per the agreement, to provide water to the site. Actions may include operating and maintaining the Ortiz well, deepening the well, changing pumps on the well, or other actions that may be necessary to allow continued pumping from the well. Acknowledging that this land is currently land locked by the Bureau of Land Management (BLM), a BLM permit may be needed for a particular mitigation measure. The mitigation measure that may be selected, and in compliance with the agreement, may or may not require additional permitting. These measures will be undertaken without cost to Mr. Ortiz, his heirs, successors, assigns and purchasers unless it is determined that no such effect exists or that the effect was caused by a person or legal entity other than the City of Santa Fe.



Santa Fe Basin Water Association

P.O. Box 6132 Santa Fe, N.M. 87502-6132

March 21, 2003

Written Commentary on the Environmental Assessment City of Santa Fe's Buckman Supplemental Wells

The environmental assessment, in it's finding of no significant impact, finds there would be no significant impact in a number of areas with which we do not agree. These areas are 1. Hydrology, stream flows, and water quality., 2. Social and economic factors, 3. Public health and safety, and 4. Environmental justice. We will present our positions in the same order listed above.

Comment # 2-1

1. Hydrology, stream flows, and water quality.

The Santa Fe Basin Water Association is a membership organization in existence since 1971 and since 1980 a New Mexico non-profit corporation, active in the prevention of the commercial overuse of the Santa Fe Water Basin. Many of the association's members traditionally have been, and currently are, water users and owners of water rights in the Santa Fe stream system or Santa Fe Water Basin. Due to our concerns relating to impairment and other matters relating to the construction of and proposed production of water from the Buckman supplemental wells #'s 10 through 13, we filed a timely legal protest against these wells before the New Mexico State Engineer's office. That protest was duly accepted and a hearing in the matter has been scheduled. In referring to comments or information presented in the Environmental Assessment, we will refer to it as the assessment.

Relating to depletions in the Rio Pojoaque and Tesuque Creek, the assessment (page 31) states "The OSE would require the City to offset any and all depletions in the Rio Pojoaque and Tesuque Creek resulting from operation of the Buckman wells." It further states " the City may purchase senior water rights from current owners who use the water for irrigation via acequias that divert the water from those tributaries. The quantity of these rights available for purchase, however, are limited and the owners are not required to sell." This assessment is correct and as a matter of fact, understated, in that few, if any, water rights are available in the stated tributaries. The modeling results in CDM 2002b. (Camp, Dresser, McKee,

tributaries. The modeling results in CDM 2002b. (Camp, Dresser, McKee, Inc., City of Santa Fe, Implementation of Supplemental Buckman wells) in a number of use scenarios, show likelihood of new depletions in those stream systems. If these depletions cannot be offset, the wells cannot be used.

The assessment ignores the modeling results in the above mentioned CDM report which also indicate impairment of the Santa Fe stream system and the Santa Fe Water Basin to the extent that the cone of depression resulting from various pumping scenarios will result in new depletions from the Santa Fe River itself and in one scenario, a drawdown of five feet of water encompassing a stretch of the Santa Fe riverbed and a large area of the City itself, nearly reaching the very intersection of Interstate-25 and NM Hwy 285, extending somewhat beyond I-25, and increasing to ten feet of drawdown west of the Santa Fe river, getting progressively deeper nearer the supplemental wells, an area of 50 feet of drawdown is shown in the well field itself, and maximizing at the center of the group of supplemental wells (shown as 150 feet).

We think this shows the potential for very serious impairment of water rights in the Santa Fe stream system (which the assessment fails to acknowledge or address).

The Buckman well field was begun in 1972 and a series of wells was drilled (Numbered #1 thru 8) over several years, most recently with #9, in order to divert water hydrologically connected to the Rio Grande which could be replaced by releases of San Juan/Chama diversion water, quantities of which have been and are stored in Heron reservoir, and which water was, and is, available to the City of Santa Fe through contract. It has been discovered that the Buckman field has some properties in it's hydrology and problems in the siting of some of the original wells which cause it to be only partially effective in it's desired goal of bringing imported San Juan/Chama water on line to the City of Santa Fe in a way which does not cause impairments to water rights in other stream systems. The City was required to purchase and dedicate some senior water rights on the Rio Pojoaque and Tesuque Creek to offset depletions caused by the pumping of wells #1 thru #8. The State Engineer permitted the diversion of up to 10,000 acre feet of water from the Buckman well field itself but the existing wells (not including #9), since they have been on line, have diverted only 5300 Acre Feet of water in a single peak year, from the well field and less than that on average. That includes

amounts of water charged off to, or replaced in the Rio Grande using, San Juan/Chama diversion water.

From a legal standpoint, we do not believe that these supplemental wells should be allowed to increase that peak annual amount of diversion beyond the historic diversion of wells #1 thru #8.

Comment # 2-2

2. Social and economic factors.

The governing body in Santa Fe has been and is under considerable pressure from development interests in the city of Santa Fe and from the Santa Fe County governing body and development interests in Santa Fe county (with whom the Santa Fe County water utility is involved in virtual if not actual partnerships in water transfers), and even the former New Mexico State Engineer in public forums and interviews granted to local newspapers, to make available to the City and County water utilities, the full amount of water available from the San Juan/Chama diversion project as well as other middle Rio Grande water rights the County water utility, and developers in the County area south of Santa Fe have jointly sought to transfer into the Buckman well system.

The policy of the County which results in master planning of large areas of the undeveloped and partially developed areas of the County generally south of the city and a related policy which sends developers in search of water rights to transfer for the development is a combination of two things, enlightened and problematic.

It is an enlightened policy to understand that development must use imported water because there are not sufficient water rights available from the Santa Fe Basin to support more development because the Santa Fe Basin is already over-allocated and in a state of mining. For this same reason, the use of new domestic wells should be discouraged in areas which could be in the service area of the County water utility.

It is problematic because the competition for water rights on the middle Rio Grande causes inflation in the values of those water rights and causes problems on the middle Rio Grande in terms of the removal of water rights from their traditional uses and creates the potential that water rights which should be considered abandoned or water rights that might be overstated might be transferred.

It is also problematic because the relationship between the governing body of the County and its obligation to operate in the public interest and the developers and the virtual partnerships between developers and the County

water utility causes a blurring of what constitutes the public interest and furnishes a driving motivation for the County to allow inappropriate levels of development.

3. Public health and safety and 4. Environmental Justice

Comment #
2-3 and 2-4

The desire to allow development to continue within the City has resulted in a refusal to seriously curtail, even temporarily, the growth of water use other than through enforced conservation measures for existing City water customers, (in the face of continuing drought, by the mayor and half of the governing body). Half of the members of Santa Fe's governing body voted for introduced legislation to tighten the "water budget" for developers but the measure was defeated in a tie breaker vote by the current mayor of Santa Fe in 2002.

The fast track of the development interests in the County puts pressure on the City to allow transfers into the Buckman well field, pending the future development by the City, the County, and the Las Campanas development of direct diversion facilities on the Rio Grande itself, circa 2007.

The Buckman well field is probably not the answer to the desires of the developers in the county to fast track their developments and in the language of one of the criteria of the New Mexico State Engineers' Office would be "contrary to the public interest and detrimental to the public welfare". As stated earlier in our comments, we think the supplemental wells have the potential for very serious impairments of existing water rights in the Santa Fe stream system and, from a legal standpoint, we do not believe that these supplemental wells should be allowed to increase the peak annual diversion beyond the historic diversion of wells #1 thru #8.

The economic interests of developers, contractors, realtors, mortgage companies and a myriad of other interests furnishes many proponents of continued growth despite the great danger of extending Santa Fe over the brink of a disaster from which it might not recover. This would appear to be an impossible climate in which to further wise water or growth planning.

The supplemental Buckman wells should be viewed as having "very significant impacts" in all the categories we addressed.

Sincerely,



Eliot Streeper,
President, Santa Fe Basin Water Association

Response to Comment # 2-1:

- Page 1, last paragraph. The comment is made that senior water rights are limited. They are not unavailable however. Later in that same paragraph (on the top of page 32 of the March 7, 2003 EA) several other possible mitigation options are listed including delivery of offsetting water by truck and by pipeline.
- Page 2, top paragraph. The comment is made that if depletions cannot be offset, the wells cannot be used. The City understands that there are several potential mitigation options (see previous comment) and intends to comply with mitigation requirements established by the OSE.
- Page 2, second and third paragraphs. The drawdown conditions referenced in this paragraph of the commenter's letter are for a scenario that is not the proposed action described in Section 2.2.2 (page 10) and in Section 3.8.2 (page 52) of the March 7, 2003 EA. In addition, the drawdown beneath the City and the Santa Fe River described under this scenario are for conditions experienced by a portion of the aquifer adjacent to the well screens of the Buckman wells, deep within the aquifer. The drawdown of the water table surface due to deep pumping are much smaller due to the layering of the aquifer sediments as outlined in the document written by CDM titled City of Santa Fe Implementation of Supplemental Buckman Wells Section 2.5.4 page 2-15. Section 3.1.4 of the EA describes the reason why the EA found no potential for impacts to the Santa Fe River and La Cienega and La Cieneguilla Springs.
- Page 2, last paragraph. The Buckman well field produced more than the 5,300 acre-feet (AF), including 5,891 AF in 1995 and 5,838 AF in 2002.
- Page 3, first full paragraph. The City intends to more fully utilize the 10,000 AF per year Buckman well field production for which the OSE granted a permit. However, as discussed on page 10 of the EA, the total Buckman well-field production will be scaled back to an average of approximately 1,000 AF per year after 2006 if the Buckman Direct Surface Diversion is authorized and on-line in 2007.
- Page 3, first full paragraph. The City intends to more fully utilize the 10,000 AF per year well field production for which the OSE granted a permit.

Response to Comment # 2-2:

It appears that the commenter's concerns about the impact to social and economic factors are "County policy." While it is true that traditional ways of life are changing in the area because of growth, development, and changes in the county, it is also true that they are changing because of the continuing drought, which has decreased the amount of water available for traditional gardens and landscaping. In any NEPA document, the task is to look at existing legislation and master plans to determine how they interact with the effects of the proposed action. The issues

that are listed in the commenter's letter were determined during the drafting of the March 7, 2003 EA to be in compliance with current City and County regulations.

Growth in Santa Fe is a political issue that is not addressed in the EA or in the EIS on the diversion project.

Most of the issues that the commenter describes are under the purview of the New Mexico State Engineer's Office and the Interstate Stream Commission. The State Engineer sets the requirements for domestic well permits, oversees water rights sales and transfers. The value of water rights has been rising for over 20 years in New Mexico; but owners are not forced to sell their water rights. It is the responsibility of the State Engineer's Office to determine what is "contrary to the public interest and detrimental to the public welfare." It is also the role of the State Engineer's Office to determine if the supplemental wells will impair existing water rights.

- Page 3, second full paragraph. The comment regarding collaboration of the City and County is unrelated to use of the supplemental Buckman wells as described in the EA.
- Page 3, last four paragraphs. The discussion of master planning, water rights and growth is noted. However, as described in Sections 2.2.2 and 3.8.2 of the EA, it is the City's plan to operate the supplemental Buckman wells as an emergency drought protection supply. If the proposed Buckman Direct Surface Diversion is authorized and comes on-line in 2007, the average use of the Buckman well field as a whole will be reduced significantly under "normal" operational scenarios.

Response to Comment # 2-3:

It appears that the commenter is concerned about the City and County continuing to allow growth – new developments, housing and population – in light of the need for enforced conservation measures for existing water customers and to "tighten the water budget" for developers. The New Mexico Bureau of Business and Economic Research noted in its report to the City of Santa Fe on the economic impact of a growth rate ordinance that the ability to sustain growth is influenced by many factors. Assured water availability is arguably an influential factor governing growth in the Santa Fe County region. While that is no doubt true, the desirability of continued growth is a political issue not appropriate for review in an EA.

- Page 4, Section 3. It is emphasized that the City's plan is to operate the supplemental Buckman wells as an emergency drought protection supply. If the proposed Buckman Direct Surface Diversion is authorized and comes on-line in 2007, the average use of the Buckman well field as a whole will be reduced significantly in normal precipitation years. The availability of water provided by the supplemental Buckman wells is felt to be a significant public benefit because the project adds a measure of operational flexibility and overall improved reliability.

Response to Comment # 2-4:

The intent of the Environmental Justice order was to protect minority and low-income neighborhoods from becoming the disproportionate dumping ground for generally undesirable public projects such as waste treatment plants. The Executive Order was designed to give these populations a voice in decisions where those decisions had previously been made by non minority, non-low-income people.

The letter of Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations) directs federal agencies to assess whether the Proposed Action or alternatives would have disproportionately high and adverse human health or environmental impacts on minority and low-income populations.

Minority refers to people who classified themselves in the 2000 US Census as African Americans, Asian or Pacific Islanders, American Indians, Hispanics of any race or origin, or other non-White races.

A minority population refers to an area where minority individuals comprise 25% or less of the population. In Santa Fe County persons of Hispanic or Latino origin account for 49% of the population, and American Indian/Alaska Natives account for 3% of the population. White persons, not of Hispanic or Latino origin accounted for 46% of the total County population in 2000 (Census Bureau, 2002). Only American Indians would qualify as a minority population in this context, and there is no evidence that this group is being disproportionately affected in an adverse manner. All water customers who live within the city or county are subject to the same water usage rules.

Low-income populations as defined by U.S. Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations) refers to a community in which 25% or more of the population is characterized as living in poverty, as determined by statistical poverty thresholds used by the U.S. In 2000 the poverty weighted average threshold for a family of four was \$7,603, and \$8,794 for an unrelated individual (Census Bureau, 2001). In Santa Fe County, 11.9% of the population is below the poverty threshold (Census Bureau, 2002). There is no specific low-income community in the County that would be affected by selection of the Proposed Action.

From: Elaine Cimino
To: Devin Kennemore
Sent: 3/19/03 5:49 PM
Subject: CES Comments on BLM EA Buckman Wells

Here are the Comments from Citizens for Environmental Safeguards. However, because of the problem of not being able to attach this document for some reason I will also handdeliver them, also.

Elaine Cimino

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REVIEW BY ZANE SPIEGEL, Ph.D. (March 19, 2003) of
US Bureau of Land Management [USBLM] Environmental Assessment for
Buckman Supplementary Well[s]
Prepared by TetraTech Inc.

INTRODUCTION

This reviewer has had 53 years of experience in ground-water hydrology, 41 of which involved editing of technical reports by employing agencies and cooperators, plus a decade as associate editor of "Ground Water" (NGWA). Formal and self-education, on-the-job training and consulting work was frequently done under or in collaboration with several of the ten most qualified ground-water specialists in the world. Most of his work has been in NM, much of it with U.S. Geological Survey (USGS) and several NM state agencies, notably detailed field studies of the Espanola basin (Spiegel and Baldwin, 1963).

Since 1971, consulting projects and university teaching were done in numerous U.S. states and abroad, as well as in NM. Specialties have been correct basic concepts and appurtenant logical terminology; mathematical models of mutually leaky, stream-connected aquifer systems; with applications to the Rio Grande (RG) rift system and its administration under the Rio Grande Underground Water Basin (RGUGWB), for which he was principal investigator (1956) and expert witness in its legal defense (City of Albuquerque vs. SE Reynolds, 1957); and riparian geomorphology. Ironically, prior to the selection of the existing site of the Buckman well field by Santa Fe's water supplier [Public Service Co. of NM (PNM)] this reviewer advised (through W.F. Turney & Associates, Consulting Engineers) that the most logical course of action was a line of widely-spaced wells beginning northwest of the "City" well field (such as the recently successful Northwest Well) and trending northerly along the proposed alignment of a pipeline to the Buckman site, which could be used for future direct diversion of the RG. Alternatives of (a) Collector Wells under the RG and (b) a group of closely spaced wells near Buckman were discouraged. Alternative (a) was tried, but failed, and (b) has been extremely inefficient.

The reviewed document, if actually intended to adequately serve NEPA purposes, as cited in its first 16 pages (to end of Sec. 3.8.2) was poorly planned.

(A) There is no single map, such as an update and augmentation of Plate 7 in USGS WSP 1525, to show all the essential hydrologic features of northern Santa Fe County that might be affected by the proposed four wells (and in the not too remote future, by possible additional wells, such as those that were recommended by this reviewer three decades ago). "Augmentation" should include identification of areas of historical and present springs and perennial and intermittent streams. Some of this information is readily available from WSP 1525, Plates 1-7, Fig. 2 (showing "Canyoncito Springs", on Canada Ancha, near the proposed well field), and Table 18; numerous reports on the Los Alamos/LANL area, especially a review (CES, 2003) of a LANL report by Vesselinov and Keating, 2002; recent USGS topographical maps at 1:24,000 scale; and NMOSE files.

Comment # 3-1

(B) The EA's various maps (Figures 1-1,2,3; 2-1,2) have different scales.

Comment #
3-2

(C) There is no diagram to show how the various map figures are related.

Comment #
3-3

(D) A clearer understanding of the total system layout would have been achieved by adding all proposed new features to Fig. 1-2. .

Comment #
3-4

Without item (A) of the foregoing list of deficiencies, neither the EA authors nor the public are likely to clearly understand the geography and surface hydrologic features and interrelationships of this remote and little-traveled area, particularly the historic hydrologic features. Readers need to easily determine the following facts that are not obtainable from the present EA alone: (a) distance between the present cluster of wells in the Buckman well field and the proposed new linear well field, and (b) distances between each of these two well fields and other hydrologic features, such as (i) Canyoncito Springs in Canada Ancha, (ii) historic and present perennial and intermittent reaches of Rio Pojoaque; (iii) the perennial portions of Rio Tesuque, especially near Cuyamungue and Tesuque Pueblo; (iv) historic springs at La Cieneguilla (elev. 6120 ft. in Santa Fe River --see WSP 1525, Pl. 6 and Table 18), and (v) the present effluent stream from Santa Fe's Waste Water Treatment Plant downstream of Santa Fe (see this writer's review (1999) of CDM report "TEMP 98").

Comment #
3-5

The main body of the present EA text has very little, if any, reliable quantitative information on expected drawdowns of ground-water levels caused by the proposed linear well field. The over-generalized statements made (in most cases not referenced to Appendix material or public documents, or detailed therein) are not supportable--see specific examples below- and are not sufficient for a legitimate EA. Long-term well fluxes eventually reaches all aquifer hydrologic boundaries. .

Comment #
3-6

NOTES: (1)La Cieneguilla springs are not mentioned in the EA or in the "TEMP 98" report cited above, and the TEMP 98 authors in numerous places have confused the spring areas of La Cienega and La Cieneguilla, or referred to La Cienega when La Cieneguilla was correct or preferable. The named villages were located in the 18th C. at spring areas in two geologically and hydrologically different valleys, each with its own set of springs, despite the fact that the streams merge downstream in a deep canyon in the basalt complex of Cerros del Rio. Although the historic main-channel La Cieneguilla springs are now submerged by the much larger sewage-effluent stream in Santa Fe River, the CDM report "Temp 98" outlines scenarios which include piping all Santa Fe effluent out of the Santa Fe River Basin and/or to an upstream point for recharge of the City well field, leaving La Cieneguilla with little or no spring flow. Any spring flow that survives the loss of effluent and continuing withdrawals from wells upstream along Santa Fe River will probably have undesirable levels of nitrate. These eventualities have not been taken into account in the EA or any ground-water models used in the past in the Santa Fe area, or in water matters under jurisdiction of NMOSE or NM Environment Dept. (NMED), despite the ready availability of public information on these concepts. .

Comment #
3-7

(2) A revised model (Core, 1996) still fails to represent La Cieneguilla main-channel springs (and neighboring spring areas) correctly, although they have long had important roles in the ecology and rights of the area. City Councilors have repeatedly made public avowals at Council meetings to protect the springs, but no formal action has been taken (see [(SC)] on S.2.2, par.3).

Comment #
3-8

(3) USGS and NM agencies provide detailed geological and geophysical information to the public about the Rio Grande basin, especially the Espanola sub-basin, but "Hydrogeophysical Exploration" (Spiegel, 2003) has lagged. Although some of the completed and ongoing geohydrological work is noted in the current EA, greater effort should have been exerted to include the latest and best data and interpretations, perhaps on an "update" sheet which could be prepared to provide the latest information and augmented conclusions. .

Comment #
3-9

(4) Most of the reference citations in this review are listed in the CES website noted below (at end of comment on Fig. 1-3 in "SPECIFIC COMMENTS").

SPECIFIC COMMENTS (SC)

ITEM

COMMENTS_____

Comment #
3-10

Fig. 1-1 (p 3) Springs and perennial/intermittent stream reaches omitted.

Comment #
3-11

Fig. 1-2 (p. 4) Proposed wells (Fig.2-1) omitted here, confusing readers.

Fig. 1-3 (p. 5) Block paragraph (yellow highlight), last sentence:

"...little or no water from the Santa Fe Basin." Is incorrect—there has never been a single day in the historic record that did not have inflow to reservoirs of about a cubic foot per second (see photo/caption of McClure Reservoir, July 10, 1951, during record drought, at CES website < www.environmentalsafeguards.com <<http://www.environmentalsafeguards.com>> > or (505) 424-3630).

Comment #
3-12

S. 2.2 (p. 6, par. 3, end; p. 7, par. 1, end--"Suppl. Wells"):

Available information requires NMOSE to order offsets of effects of proposed new BWF wells on La Cieneguilla Spring (16.8.20.312), which is entirely separate from La Cienega springs (see Table 18 of USGS WSP 1525). The current (1996) NMOSE basin model requires revision to account for all old and future BWF effects on La Cieneguilla area waters.

Comment #
3-13

S. 2.2 La Tierra Tank (p. 7, par.2, last sent.). Clarify by replacing "tank" by "La Tierra Tank" (also show on Fig. 2-1, 2-2, 1-2, plus existing 10 mg tank).

Comment #
3-14

S. 2.3 Alternatives Considered (p. 11, par. 3, sent. 1): EA conclusion that "...proposed ...supplemental wells...out of existing [BWF] zone of influence..." is not supported by data plotted in a Figure by Vesselinov and Keating (2002), as noted in a review by CES (2003)—the contour interval used by V&K was too large to show drawdown cone "fringe" effects: i.e., data may be correct, but authors' contouring and conclusions were not., as is

Comment #
3-15

apparently the case with this EA. Proper graphic representation of BWF drawdown data (with 1-foot contour intervals) will show significant current drawdowns in the vicinity of proposed wells 10-13 , with continuing lowering to be expected by the time these wells are on line.

S. 3.1.1 (Re p. 12, par. 2, end sent. The apparent limitation of the data search to "...medium- sized cities like Santa Fe..." is misleading, as Albuquerque, El Paso, and Deming (SW NM) all have documented subsidence from well flux. Also, BWF has excessive pumping rates, dense spacing, and thick clay zones, all of which promote subsidence.

Comment #
3-16

(p. 12, par. 3, sent. 3): It is important to describe geologic characteristics of the project area accurately in order that readers (and authors) may evaluate the environmental effects independently and correctly. False or incomplete concepts will not do. The EA statement "...gorge that the Rio Grande has excavated." is an inaccurate description of the project area. The present system of 3 gorges, 2 on the Rio Grande, one small one on Canada Ancha is the result of propagation upstream of erosion of basaltic flows that filled a broad ancestral erosional valley. All BWF wells and most of the pipelines are in a lowland of Santa Fe Group sediments dissected by arroyos from the east, but bordered on the west by the Rio Grande and erosion-resistant basalt mesas surrounding their small volcanic sources. SW of the proposed wells, Canyoncito Springs discharge from the Tesuque Formation in a narrow reach of Canada Ancha (Canyon Diablo) which has eroded down through a basaltic dike and thin basalt caps of mesas which surround two closely-spaced volcanic centers.

Comment #
3-17

S. 3.1.3. Geologic Setting and Mineral Resources/ Re "Existing Conditions"

Sent. 6/7: Re ".Ancha Formation...gently sloped layer of gravel...extends from Buckman area to the [north and east beneath Santa Fe.]" Should read "...[south and east to the western part of Santa Fe and beyond, where the unit locally thickens, filling its own buried erosional valleys. Baldwin and Bundy (Baldwin, 1963, Pl. 2, 5, p. 54-55--also see p. 45-53; Spiegel, 1963, p. 135-138), mapped the deepest buried valley, NW of the Santa Fe airport, as having 300 feet of Ancha fill, much of which was saturated, based on outcrops of the basal contact with the Tesuque Formation, sparse well logs, and associated geophysical studies (Winkler, 1963), .). Later studies, based on logs of thousands of newer wells drilled in the area (Spiegel,1975; Fleming, 1993--also see Spiegel, 1999) have refined the forms and depths (locally up to 400 feet) of the buried valleys.}" Last sentence should read "...up to 400 feet thick.", which is important because La Cieneguilla Springs historically discharged from this thick fill of Ancha Formation into alluvium of Santa Fe River, thence to the surface of the otherwise dry channel at elevation 6020 feet. The spring probably still discharges in this location, but is mixed with a much greater amount of City effluent.

Comment #
3-18

A zone of copper, uranium, and arsenic mineralization of a basaltic dike zone similar to, and along the trend of, some the dikes in the Buckman area has long been known in the La Bajada area, near the lower Santa Fe River. Small quantities of copper, uranium, and arsenic, dissolved in deep waters in one of the existing Buckman wells (see CES, 2001, especially its annotated list of references, available at the CES website cited in our SPECIFIC COMMENTS, re EA Fig. 1-3).

Re" Effects of the Proposed Action "

Delete first sentence, based on (1) previous knowledge (Spiegel, 1962, 1963, Pl. 7) and work cited by Clebsch (1994), recognized that the Santa Fe Group in the Espanola basin has locally deformed, westerly-dipping strata which complicate an otherwise tractable (but still difficult) condition of vertical and horizontal anisotropy of a multi-layered aquifer system, and (2) (Spiegel, 1963, Pl. 7; CES, 2001, 2002) that the BWF area likely has north-trending faults, in part related to basaltic dikes, one of which is exposed in Diablo Canyon on Canada Ancha (creating the spring area called "Canoncito Springs" in Baldwin, 1963, Fig. 2) not far south of BWF, and very close to the proposed new well field. A similar dike may extend north in the subsurface from Cerros del Rio to Black Mesa, north of Otowi Bridge.

Comment #
3-19

Both of these concepts have been confirmed by recent detailed mapping, facilitated by many new outcrops formed by extensive arroyo erosion and new roadcuts (Santa Fe Water Forum, Poster Presentations, Mar. 4, 2003; Field Trip to Buckman area, Mar. 5, 2003). Therefore the subject section needs to be revised to take current facts into consideration, for example, by adding statements such as:

"Recent geologic and subsidence investigations in the Buckman area, confirmed by field observation by Zane Spiegel (and about 30 other geologists) on Mar. 5, 2003, indicate that there are at least two northerly-trending post-Tesuque Fm. normal faults well exposed in arroyo bank undercuts in the area just east of the existing BWF, and a recently formed open fissure, parallel to and slightly east of the faults.

"The fissure is evident on the land surface almost continuously for about a quarter mile south of the best arroyo bank exposure, and is unlike any tectonic faults in the Espanola basin. The fissure is certainly caused by subsidence due to compaction of Tesuque Formation strata that have been dewatered or de-pressurized by withdrawals of water from the BWF. The location and causes of the fissure may be related to fault offsets of the more permeable beds of the area, augmented by clay fillings of the fault planes, both of which would tend to reduce the amount of drawdown to the east and increase the drawdown of water levels to the west of the mapped tectonic faults in the near vicinity of the existing BWF, therefore contribute to the likelihood of historic subsidence. "As the strata sequence in the area of the proposed BWF supplementary wells is probably similar to that in the existing BWF, and probably is bounded by faults similar to those recently mapped to the north, additional wells proposed in this EA would likely cause similar subsidence and similar potential problems of disruption of utility lines and damage to structures."

S.3.1 4 FPS, Wells, and Riparian Zones/ Re Existing Conditions

Par. 2, first two sentences: The EA does not mention two riparian spring areas that formerly were perennial, and a third area (Rio Tesuque) that is at about the same distance from both existing and proposed Buckman wells. These three areas will be discussed below in order of increasing distance from the proposed wells.

Comment #
3-20

(A) Canoncito Springs: The springs nearest to the proposed well field, Canoncito Springs, in Canada Ancha (see S. 3.3.1 above), may be dry in droughts but formerly provided water for wildlife and livestock, and at one time was piped by gravity to a concrete stock tank on the right bank. This reviewer has no recent information on this spring, but that does not excuse the authors of the EA from searching for such data, visiting the spring site, and (see later section for the following) evaluating the possible environmental effects of the proposed wells on future conditions there.

(B) Rio Tesuque: NMOSE has for a long time determined the effects of existing BWF on water rights in the Rio Tesuque valley near Tesuque Pueblo and Tesuque. As the distance from the proposed wells to this part of the Tesuque valley is less than the distance from the existing BWF, the EA should have evaluated in detail the environmental conditions near and below Tesuque, including existing uses of waters, of the riparian environment in this part of Tesuque valley, as well as the use of existing water rights (springs, stream diversions, and wells).

(C) La Cieneguilla Spring: See INTRODUCTION (NOTES: (1)) and SC comments above (re S.2.2, p. 6/7 and S. 3.1.3, Existing Conditions, sent. 6+) for description of origin and importance of the springs at La Cieneguilla. The former channel springs are now submerged by Santa Fe sewage effluent, but are probably still contributing water, augmented by the large recharge mound, (albeit contaminated by nitrates) that has accumulated during a period of more than 5 decades of distribution of inadequately treated sewage effluent to irrigated lands or the channel of Santa Fe River (see Spiegel, 1963, Pl. 7 and CES website for documentation).

Re Effects of Proposed Action

Par. 2 on p.16: First two sentences are incorrect. Provide documentation if opposed to this conclusion, or rewrite using following correct concepts:

Comment # 3-21

"The aquifer system in the Espanola basin has long been recognized as having anisotropic hydraulic conductivity and/or aquifer element transmissivity (different values in different directions; see Clebsch, 1994, for history). There seems to be little recognition that anisotropy is of importance in two distinct flow regimes, (A) natural flow conditions, due to interrelations of aquifer structure and topography, which determine the locations of natural discharge, which are usually where the most permeable strata or fracture sets are incised by streams or other depressions, and

(B) artificial flow patterns (developed by withdrawals of water from wells) initially are somewhat circular or elliptical conic forms around each well, but eventually merge with other nearby cones after continued flux, and extend outward throughout the aquifer system.

"In case (A) in our previous paragraph, on natural regional flow, the internal physics of aquifer elements determines small-scale flow patterns, but the regional pattern is controlled primarily by the locations of the natural discharges.

In case (B), all '...cone[s] of depression...' eventually extend outward to all hydraulic boundaries of an aquifer system, even in leaky or mutually leaky semiconfined conditions, as upper aquifer elements never have infinite storage capacity for fresh water (Spiegel, 1962).

Reviewer's Conclusions on Erroneous Concepts about "cones of depression" and "zones of influence": " A century or so ago correct ground-water concepts in the United

Comment # 3-22

States (and the use of analytical mathematical models, many of which had been published in both French and English, and other languages, but not used by English-speaking geologists) were not generally known, and some approximate models used in the petroleum industry were relied upon in many ground-water studies. These usually were simplified steady-state models with cylindrical physical or hydraulic boundaries at a finite radius from an axial vertical well, which resembled the common occurrence of a circular dome of permeable strata, which contained a finite lens-shaped accumulation of petroleum with an initially finite radius. This model led ground-water hydrologists to apply the concept of a fixed finite radius of

influence, which is usually a false assumption, because ground water commonly occurs in very large sheets of permeable strata in which minor folds, domes, and basins do not greatly affect flow of contained ground waters, and drawdown cones expand indefinitely to the hydraulic or physical boundaries of the pumped aquifer.

***** (Reviewer's explanation of problems in defining an expanding (nonsteady) distal edge of a drawdown cone (outer edge of zone of influence):

Comment #
3-23

In peripheral regions of a drawdown cone, measured values of drawdown of a foot or so are usually so much affected by instrumental, natural, and extraneous fluctuations (barometric, tidal, stream level; remote wells and recharge, etc.) that they cannot reliably demonstrate definitive values demarcating the proximity of the boundary of a zone of influence. Calculations can be made of locations of drawdown values that are smaller than one foot, but their accuracy depends on the validity of assumed aquifer characteristics. The radial distance to any desired fractional foot of drawdown value can best be approximated by constructing radial cross-sections based on observation wells and interpolated values in the central and intermediate portions of a cone of depression.

"Additional factors in the failure of most people, including hydrologists, to recognize the true nature of drawdown cones are (1) that normal areal recharge to aquifers does not affect the spread of drawdown cones (the recharge continues toward original locations of natural discharge), and (2) water levels in continuously-producing wells decline at decreasing rates as the cones of depression slowly expand and flatten as water is drained from the aquifer pores or fractures, so well drillers and other observers tend to falsely conclude that the pumping-well water levels and the measurable limit of drawdown at the distal edge of the drawdown cone (see detailed discussion of zone of influence below) are approaching some stable value, which is only possible if the cone reaches some new source of water, such as a spring or stream, from which the well diverts water, or diverts water from an overlying aquifer or surface-water body which has infinite storage capacity—which never exists.

Comment #
3-24

" These more realistic concepts of the effects of wells on (a) aquifers and (b) aquifer-connected surface waters were recognized by C. V. Theis soon after he began ground-water studies in New Mexico, but his formal reports on mathematical methods of analyzing well production data and/or predicting effects of wells on streams were not published until 1935 and 1941, respectively. These reports were probably influenced by earlier studies in the Pecos River area of southeast NM by USGS colleagues Fiedler and Nye. Unfortunately, the public and most hydrologists had difficulty in adjusting their thinking to these new concepts and models, and there have too few really qualified university teachers to properly educate the many "hydrogeologists" and lawyers that are required by environmental agencies and their regulations. The result has been that most state and local regulators for the use of water wells have adopted regulations that have no valid basis in modern science.

"Wells in strata of the Tesuque Formation in the Buckman area are likely to cause elliptical cones of depression, due to the probable local existence of one or more of three kinds of anisotropy, fluvial, tectono-stratigraphic, and ortho- tectonic:

(a) Fluvial-channel anisotropy is due to the tendency for channel sands to have greater transmissivity longitudinally, generally with east-west trend in RG Rift aquifers.

(b) Tectono-stratigraphic anisotropy is due to tilt of a single bed or sequence of multiple beds separated by semiconfining beds, generally in north-south trend in the RG rift sediments.

(c) Ortho-tectonic anisotropy results from division of regional rock masses into linear zones of more permeable blocks of strata, or of zones of closely-fractured rock masses. This type of anisotropy most commonly occurs in fractured crystalline rocks of the Rio Grande highlands; the fracture zones are also zones of rock weakness and susceptibility to weathering, therefore formation of linear valleys. However, in the Buckman area, except for some deep zones along basaltic dikes, it is more likely that known and unknown parallel north-south faults and/or dikes divide some areas into north-south blocks of moderately permeable sediments bordered by clay-filled normal faults which may tend to concentrate flow to wells to the enclosed blocks."

La Cienega Valley Citizens for Environmental Safeguards (CES)

48 Camino Montoya, Santa Fe , New Mexico 87507

505 424-3630 or fax 424-9593

Elaine Cimino- Executive director CES ecimino@cybermesa.com

<<mailto:ecimino@cybermesa.com>>

www.environmentalsafeguards.com

Response to Comments

Response to Comment # 3-1: Thank you for your comments on the Supplemental Wells EA. Figure 1-1 has been modified to show the hydrologic features of the area in greater detail.

Response to Comment # 3-2: The maps included in the EA are of different scales because they show different areas at differing levels of detail. This is necessary and appropriate. The cited Figures 1-1 and 2-1 have been modified to include map scales.

Response to Comment # 3-3: Figure 1-1 has been modified to identify key features that are the focus of subsequent maps, such as the existing Buckman pipeline, booster pump stations, the 10 million gallon tank, and the La Tierra Tank. The Buckman well field is already identified on Figure 1-1.

Response to Comment # 3-4: Please see previous comment. Adding all proposed features to Figure 1-2 would change its scale significantly and the detail shown in this Figure and in Figures 2-1 and 2-2 would be diminished considerably.

Response to Comment # 3-5: Please see previous responses.

Response to Comment # 3-6: Detailed quantitative information on expected drawdowns are summarized in the March 7, 2003 EA from analyses presented in the report 'Implementation of Supplemental Buckman Wells' (CDM, 2002). This report is cited on pages 15, 22, 23, 26, 30, 33, 57 and 58 of the EA. Quantitative information on expected drawdowns are summarized in the March 7, 2003 EA in Tables 3-2, 3-3, 3-4, 3-8, 3-9, 3-10 and in associated text. The drawdown results contained in the CDM report were developed from a detailed numerical groundwater flow model of the Santa Fe region, using the most recent data available at the time and incorporating a rigorous and comprehensive model calibration process for drawdown in the Buckman well field area. The stream depletion results contained in the CDM report were developed from the numerical groundwater flow model used by the OSE in their administration of water rights in the region.

Response to Comment # 3-7: The EA has been revised in Section 3.1.4 to indicate the historic presence of springs in the La Cieneguilla and La Cienega areas.

Response to Comment # 3-8: This comment is not within the scope of the EA.

Response to Comment # 3-9: The findings of the EA are based on detailed geologic, geophysical, hydrologic, environmental and socioeconomic information based on the information and data available at the time of its preparation. However, to keep the document readable to a large and diverse audience, details of many of the technical aspects have been summarized, presented in generalized form or otherwise reduced in detail. The summary nature of the discussions (as is customary in EA's) should not be taken to mean, however, that the detailed information was not used in the analyses as the basis for conclusions.

Response to Comment # 3-10: See previous response; the historic La Cienega and La Cieneguilla springs have been added to Figure 1-1.

Response to Comment # 3-11: The cited Figure is provided as an overview map of existing facilities in the Buckman well field area. The title of Figure 1-2 has been revised to read “Map of Existing Water Supply Facilities in the Buckman Well Field Area”.

Response to Comment # 3-12: The statement is a general assumption used to define drought conditions. The flows experienced in 2002 are less than ten percent of the long-term average flows into McClure reservoir, which is reasonably characterized by the statement of there being little or no water derived from the Santa Fe basin during drought conditions.

Response to Comment # 3-13: This comment is not within the scope of the EA.

Response to Comment # 3-14: The requested edit to change “tank” to La Tierra Tank” has been made. The map area of Figure 2-1 does not show the area of the proposed La Tierra Tank. In Figure 2-2, the location of the La Tierra Tank is already identified; however, the title of has been altered to clarify that the 4 million gallon tank is the La Tierra Tank. Figure 1-2 is an overview of existing water supply facilities. The existing 10 million gallon tank is shown in Figure 2-2.

Response to Comment # 3-15: The simulated drawdown under year 2000 conditions in the vicinity of the supplemental Buckman wells is less than 10 feet, and is projected to be less than 13 feet by the year 2006. Compared to drawdown in the center of the existing Buckman well field of over 300 feet, the statement that the proposed locations are ‘largely out of the existing Buckman well-field zone of influence’ appears to be a correct and accurate statement.

Response to Comment # 3-16: The last two sentences of this paragraph in the EA (Section 3.1.1, page 12, second paragraph) have been revised to state “Examples of subsidence related to well pumping have been documented in the literature. The nature and extent of the surface fracture in the vicinity of the Buckman Well Field is at present uncertain and is being studied by the USGS, OSE, and others.”

Response to Comment # 3-17: The statement in the EA (Section 3.1.1, page 12, third paragraph) has been revised to state ‘... the gorge adjacent to the Buckman well-field and associated valleys created by upstream erosion of the Rio Grande and its west-flowing tributaries.’

Response to Comment # 3-18 : Sentence 6 in the EA (Section 3.1.3, page 14, under Existing Conditions) has been revised to read ‘...extends south and east to the western part of Santa Fe and beyond.’ The final sentence has been revised to read ‘...up to 400 feet thick.’

Response to Comment # 3-19: The presence of a surface fracture near the existing Buckman well-field is discussed in Section 3.1.1. However, it should be noted that detailed studies on the source of the surface fracture are now underway, and it is therefore premature to assign a cause of the fracture to use of the Buckman wells.

Response to Comment # 3-20: The EA text has been revised (Section 3.1.4, page 15, third paragraph under Existing Conditions) to mention the presence of the noted springs. The EA includes a discussion of the anticipated depletions to Tesuque Creek and it is the City's intention to offset depletions to Tesuque Creek as required by the OSE.

Response to Comment # 3-21: The first two sentences of this paragraph in the EA (Section 3.1.4, page 16, second paragraph under Effects of the Proposed Action) have been revised to state 'The springs along the Santa Fe River and its tributaries at La Cienega and La Cieneguilla were evaluated for potential impacts due to operation of the Supplemental Buckman Wells 10 through 13 under the Proposed Action. Groundwater modeling results indicate that up to 2 feet of aquifer drawdown could occur in the vicinity of La Cieneguilla and up to 0.5 feet of aquifer drawdown could occur in the vicinity of La Cienega by the year 2060. These model results are for a portion of the aquifer far below the water table surface where the largest aquifer pumping and related impacts are anticipated. Aquifer drawdown at the water table surface would affect flow in the springs more directly, and is much smaller than the values reported. Based on these findings, the effect on springs and seeps associated with the Proposed Action is expected to be minimal.'

Response to Comment # 3-22: Comment noted.

Response to Comment # 3-23: Comment noted.

Response to Comment # 3-24: Comment noted.



BILL RICHARDSON
GOVERNOR

State of New Mexico
ENVIRONMENT DEPARTMENT

Office of the Secretary
Harold Runnels Building
1190 St. Francis Drive, P.O. Box 26110
Santa Fe, New Mexico 87502-6110
Telephone (505) 827-2855



RON CURRY
SECRETARY

DERRITH WATCHMAN-MOORE
DEPUTY SECRETARY

March 18, 2003

Devin Kennemore
Tetra Tech, Inc.
502 W. Cordova, Suite C
Santa Fe, N.M. 87505

Dear Mr. Kennemore:

**RE: BUCKMAN SUPPLEMENTAL WELL ENVIRONMENTAL ASSESSMENT,
MARCH 7, 2003**

New Mexico Environment Department (NMED) staff reviewed the information in the above-referenced Environmental Assessment (EA). The following comments are provided based on the information contained in the EA.

This document outlines impacts under the scenarios of No Action and Proposed Action. The project is related to accessing more ground water through the addition of supplemental wells (#10-13) to meet water supply demands. The No Action impacts would primarily concern socioeconomic impacts to the City of Santa Fe. The Proposed Action would increase the well field by four additional wells drilled to a depth of approximately 2000 feet below the surface, install associated piping to these four wells and a four million gallon storage tank. The construction would require easement of 0.7 acres per well, and to use 0.25 acre per well when the project construction is complete. The associated pipeline will be approximately 7,100 feet long and would be buried adjacent to an existing pipeline at a depth of 4.5 feet. A power cable would be buried adjacent to the pipeline, possibly in the same trench. The report states that "no trees are expected to be removed for the installation of the pipeline and power cable", which will minimize impacts to the surrounding area.

Comment #
4-1

This document covers water quality concerns addressed earlier this year regarding the installation of well #9. (9/02 NMED #1628ER) The impact of the construction of these wells is addressed comprehensively. NPDES issues are covered, CWA sections 401 and 404 are addressed, and bmps for the Storm Water Management Plan are included in Appendix B. The hazard of soil erosion can be severe in soil types that will be disturbed. In areas where the pipeline crosses extremely erodible soils, we would like to encourage the use of fiber mats instead of or in conjunction with gabion mats.

Comment #
4-2

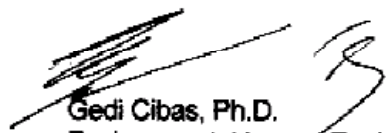
If the best management practices listed in the document are followed, the impacts to the environment will be minimized. The document also addresses the impacts to the Rio Tesuque and the Rio Pojoaque, including the draw down of water, which will impact riparian, wetland and aquatic species. The City will work with the Office of the State Engineer to offset flows depleted through pumping action at the Buckman well field.

Comment #
4-3

Devin Kennemore
March 18, 2003
Page 2

We appreciate the opportunity to comment on this project.

Sincerely,

A handwritten signature in black ink, appearing to read 'Gedi Cibas', is written over the printed name.

Gedi Cibas, Ph.D.
Environmental Impact Review Coordinator

NMED File No. 1698ER

Response to Comments

Response to Comment # 4-1:

Comment noted.

Response to Comment # 4-2:

The City will work with NMED in implementing Best Management Practices where practicable during construction of the supplemental wells.

Response to Comment # 4-3:

The City will provide an initial baseline survey of jurisdictional wetlands in the Rio Pojoaque and Tesuque Creek drainages that may potentially be impacted by operation of the Supplemental Buckman Wells 10 through 13. The survey will be undertaken through aerial photography and limited ground truthing. The OSE model for Supplemental Buckman Wells 10 through 13 will be used to determine stream depletion along the Rio Pojoaque and Tesuque Creek and will dictate which reaches to be surveyed. Every five years after the baseline survey, the wetlands will be re-surveyed and evaluated by the City. If jurisdictional wetlands existing along the se drainage basins are found to have been adversely impacted by the City's operation of Supplemental Buckman Wells 10 through 13, a mitigation plan will be developed and implemented. The City's responsibility in the mitigation of adversely impacted wetlands in these affected reaches will be proportional to the City's modeled depletion compared to the total surface sand groundwater use along the Rio Pojoaque and Tesuque Creek.

This revised language appears in the following sections of the EA: Section 3.1.4, page 16; Section 3.2, page 33, last paragraph under Environmental Commitments; Section 3.8.2, page 53, last paragraph under Cumulative Effects; Section 4.0, page 59, second paragraph under Floodplains, Wetland, and Riparian Zones.



DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
4101 JEFFERSON PLAZA NE
ALBUQUERQUE, NEW MEXICO 87109-3435
FAX (505) 342-3498

March 20, 2003

REPLY TO
ATTENTION OF:

Operations Division
Regulatory Branch

Mr. Devin Kennemore
Environmental Project Manager
Tetra Tech, Inc.
502 W. Cordova, Suite C
Santa Fe, New Mexico 87505

Dear Mr. Kennemore:

This is in reference to your March 7, 2003, letter requesting our review of the Buckman Supplemental Well Environmental Assessment (EA), dated March 7, 2003. The Proposed Action Alternative will involve the construction of four new wells (Buckman Wells #10-13) on Bureau of Land Management (BLM) land; and the construction of a four million gallon storage tank and an associated road and a pipeline on lands owned by the City of Santa Fe. The proposed work is located approximately 10 miles northwest of Santa Fe and 6 miles southeast of the existing Buckman well field, within Santa Fe County, New Mexico. We have assigned Action No. 2003 00155 to this request.

The language in the EA found at Chapter 3.0 (Affected Environment and Environmental Consequences), Section 3.14 (Floodplains, Wetlands, and Riparian Zones), page 15, second paragraph, first sentence states that "...the four well-sites are not located in a 100-year floodplain." If the construction of the wells will not involve the placement of dredged or fill material into waters of the United States, the well construction will not require authorization under Section 404 of the Clean Water Act.

Comment #
5-1

The language in the EA found at Chapter 3.0 (Affected Environment and Environmental Consequences), Section 3.14 (Floodplains, Wetlands, and Riparian Zones), page 15, second paragraph, third sentence states "The pipeline heading west from the La Tierra tank crosses an unnamed arroyo that is likely subject to 100-year floods." If the pipeline crossing involves the placement of dredged or fill material into the unnamed arroyo, the work will require Section 404 authorization. This authorization may be under the terms and conditions of Section 404 Nationwide Permit No. 12 for utility line activities. The EA

Comment #
5-2

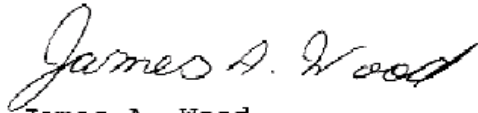
correctly states this information in Chapter 3.0 (Affected Environment and Environmental Consequences), Section 3.14 (Floodplains, Wetlands, and Riparian Zones), page 15, fifth paragraph, third and fourth sentences.

Please contact this office for a final determination of permit requirements when the plans for the pipeline construction have been developed. The opportunity to review the Buckman Supplemental Well EA is appreciated. If you have any questions about these comments, please feel free to contact me at (505) 342-3280 or by email at james.a.wood@usace.army.mil.

Comment #

5-3

Sincerely,

A handwritten signature in cursive script that reads "James A. Wood".

James A. Wood
Regulatory Project Manager

Response to Comments

Response to Comment # 5-1:

The City of Santa Fe will contact your office for a final determination of Section 404 Permit requirements when the plans for pipeline construction are finalized.

Response to Comment # 5-2:

See Response to Comment # 5-1.

Response to Comment # 5-3:

See Response to Comment # 5-1.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Mexico Ecological Services Field Office
2105 Osuna NE
Albuquerque, New Mexico 87113
Phone: (505) 346-2525 Fax: (505) 346-2542

March 24, 2003

CLASS			
FOLDER			
PROJECT			
CONTROL #			
NAME	DATE	SERIAL	NO.
Errol Jensen			
Stewart			
Cont # 2-22-03-1-257			

Memorandum

To: Chief, Environmental and Planning Group, Bureau of Reclamation, Upper Colorado Region, Western Colorado Area Office, Durango, Colorado (Attn: Errol G. Jensen)

From: Field Supervisor, U.S. Fish and Wildlife Service, New Mexico Ecological Services Field Office, Albuquerque, New Mexico

Subject: Construction of Supplemental Water Supply Wells in the Buckman Well Field, City of Santa Fe, New Mexico

Thank you for your March 17, 2003, memorandum requesting our review of the City of Santa Fe (City) Buckman Supplemental Well Environmental Assessment (EA). The project is located approximately 10 miles northwest of Santa Fe and 6 miles southeast of the Buckman Well Field on lands administered by the Bureau of Land Management (Township 18 N, Range 8 E, Sections 20, 28, 33, and Township 17 N, Range 8 E, Section 3), Santa Fe County, New Mexico. The proposed project includes the construction of four water supply wells and associated facilities. Construction of the wells is an emergency action to help alleviate current water shortages and lessen water use restrictions for the near future. The City anticipates that the first of these wells will be online in July 2003.

Based on our review of your EA, we concur with your determination that the project, as proposed, will not affect threatened or endangered species, or designated critical habitat. However, to protect fish and wildlife resources, we offer the following comments.

GENERAL COMMENTS

We support the implementation of the mitigation and minimization measures and best management practices identified in the EA. These include the development of a vegetation plan, incorporation of erosion and sedimentation control measures, air quality control measures, and hazardous materials (petrochemical) handling measures. Backfilling of trenches and providing escape ramps in open trenches will minimize impacts to wildlife during construction.

The Migratory Bird Treaty Act (MBTA) prohibits the taking of migratory birds, nests, and eggs, except as permitted by the U.S. Fish and Wildlife Service. To minimize the likelihood of adverse

Comment #
6-1

Comment #
6-2

impacts to all birds protected under the MBTA, we recommend construction activities occur outside the general migratory bird nesting season of March through August, or that areas proposed for construction during the nesting season be surveyed, and when occupied, avoided until nesting is complete.

SPECIFIC COMMENTS

3.1.4 Floodplains, Wetlands, and Riparian Zones

According to the EA, project related impacts to wetland and riparian habitats in the Rio Pojoaque and Tesuque Creek will be minor, however, wetlands in these streams have not been quantified. We recommend that wetland habitats in these streams be quantified and that mitigation for project related impacts occur. For wetland mitigation, we recommend that 2 acres of wetlands be created for every acre impacted as a result of the project.

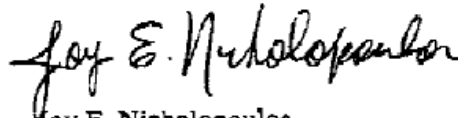
Comment #
6-3

3.2 Water Resources

The City has purchased and retired water rights from the Rio Pojoaque and Tesuque Creek to offset depletions in the streams resulting from Buckman well-field water pumping. The City plans to offset project related depletions in the Rio Pojoaque and Tesuque Creek by either purchasing and retiring senior water rights in the streams, piping water to the streams, or trucking water. Natural hydrologic conditions (e.g., flow, temperature, dissolved oxygen, etc) in the Rio Pojoaque and Tesuque Creek should be maintained to ensure that the streams retain their natural dimension, pattern, and profile. It may be difficult, to maintain a natural hydrograph and hydrologic characteristics if piping or trucking of water are used to offset depletions. Therefore, we recommend methods other than piping and trucking of water be investigated.

Comment #
6-4

Thank you for your concern for New Mexico's wildlife and their habitats. In future correspondence regarding this project, please refer to consultation # 2-22-03-I-257. If you have any questions about the information in this letter, please contact John Branstetter at the letterhead address or at (505) 761-2525 ext. 4753.


Jay E. Nicholopoulos

cc:

Environmental Projects Coordinator, City of Santa Fe, Santa Fe, New Mexico
(Attn: Dale Doremus)

Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico

Director, New Mexico Energy, Minerals, and Natural Resources Department, Forestry
Division, Santa Fe, New Mexico

Response to Comments

Response to Comment # 6-1:

Best Management Practices will be implemented through stipulations attached to the BLM permit for right-of-way.

Response to Comment # 6-2:

Area of disturbance will be surveyed and no take will occur.

Response to Comment # 6-3:

The text in the EA has been modified (Section 3.1.4, page 16; Section 3.2, page 33, last paragraph under Environmental Commitments; Section 3.8.2, page 53, last paragraph under Cumulative Effects; Section 4.0, page 59, second paragraph under Floodplains, Wetland, and Riparian Zones) to state ‘The City will provide an initial baseline survey of jurisdictional wetlands in the Rio Pojoaque and Tesuque Creek drainages that may potentially be impacted by operation of the Supplemental Buckman Wells 10 through 13. The survey will be undertaken through aerial photography and limited ground truthing. The OSE model for Supplemental Buckman Wells 10 through 13 will be used to determine stream depletion along the Rio Pojoaque and Tesuque Creek and will dictate which reaches to be surveyed. Every five years after the baseline survey, the wetlands will be re-surveyed and evaluated by the City. If jurisdictional wetlands existing along the se drainage basins are found to have been adversely impacted by the City’s operation of Supplemental Buckman Wells 10 through 13, a mitigation plan will be developed and implemented. The City’s responsibility in the mitigation of adversely impacted wetlands in these affected reaches will be proportional to the City’s modeled depletion compared to the total surface sand groundwater use along the Rio Pojoaque and Tesuque Creek.’

Response to Comment # 6-4:

Comment noted.

28 March 2003

Mr. Brownlie:

Thank you for allowing me the time however short to work on and submit my response to the The Buckman Supplemental Well Environmental Assessment. As per our conversation yesterday, here are my comments for inclusion to the record.

1. Adequate assessment of aquifer viability.

The EA offers assurances that the Buckman transmission “pipeline has sufficient capacity” available to transport the additional water produced by wells 10-13, but doesn’t offer any studies as to actual water supply measurements in the aquifer, projections of possible diminishment of that supply, and probable effects to users downstream from pumping each year as it is pumped. Documentation or models that refer to the dynamics, mapping features, and future scenarios of this particular aquifer would have made the EA more complete.

**Comment #
7-1**

It was reported as a common theory by the scientists involved at the last EBTAG - Española Basin Technical Advisory Group workshop in March, 2003 that the fissures visible at the Buckman well field were the result of over pumping of the aquifer at Buckman. Is this a good sign? Scientists are presently trying to study this further to prove the reasons.

2. Adequate assessment of impacts to Santa Fe county area domestic wells currently in use. Given that Santa Fe County also anticipates the use of water from wells #10-13 for their proposed water utility, the EA falls short in addressing the impact that proposed pumping will have on County residents with wells. South Santa Fe County in 2002, experienced many problems in the area of South Highway 14 and it is believed that area wells will be negatively impacted by the level of pumping planned at Buckman 10-13 since it is the same aquifer. The EA would have been more complete had it included studies of such possible effects.

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Given that in 2002 the OSE was studying this area for a potential designation as a Critical Management Area, the EA is not making an effort by any "commitments" to protect south Santa Fe well owners by the pumping dynamics and its possible effect to those wells that sit at the fringe of the aquifer in question.

3. Environmental Commitments.

I disagree with the proclamation that an environmental impact study is not needed and would argue with the finding of “...no significant impact on human environment.” As previously stated, the aquifer is currently being studied by the EBTAG. Second year studies have offered broader understandings of the actual supplies existing in this aquifer. It is true that these studies are incomplete at this time, naturally making it unwise to pump the aquifer at the levels planned without any environmental commitments or limitations that safeguard its health and the welfare of users downstream. Since the EA

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declares that with the supplemental wells in place would not be able to fully meet the peak demand under drought conditions experience in the summer of 2002, water taken from these wells should be limited and budgeted to serve existing customers and very strict community growth plans.

It is a concern that draw down from these wells will continue even if the Rio Grande diversion is authorized and constructed. This is contrary to the word the general public is getting from its city and county officials saying that it will be curtailed in 2007 when San Juan Chama water comes on line. It is possible that the pumping at Buckman 10-13 could deplete our wells and put county residents in a “stage 5” emergency situation.

4. Economic implications

We must protect everyone with rights to this aquifer. Not doing so can have significant economic loss to those who currently own land and working wells in Santa Fe County. Without a working well there is no water. Without water the land is worthless. County resident investments could take a big hit. Santa Fe County does not have the infrastructure in place to safeguard all who have already and will continue to be impacted by pumping at the Buckman.

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7-4**

5. Environmental organizations not included in EA

No mention of nonprofit organizations with interests in protections of ways of life and environmental justice were included.

**Comment #
7-5**

6. Conformance with the Taos Land Use Plan?

I question why the conformance to a Santa Fe Resource Management Plan wouldn't be more appropriate.

**Comment #
7-6**

Submitted by
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Response to Comments

Response to Comment # 7-1:

Thank you for your comment on the March 7, 2003 EA. The EA includes reference to several studies that address the comment regarding studies of water supply measurements in the aquifer, projections of possible diminishment of that supply and effects to downstream users. The primary studies used by the EA are cited as CDM 2002b, with additional technical background provided from CDM 2002b. The CDM 2002b report is cited on pages 15, 22, 23, 26, 30, 33, 57 and 58 of the EA. Quantitative information on expected drawdowns are summarized in the EA in Tables 3-2, 3-3, 3-4, 3-8, 3-9, 3-10 and in associated text. These reports are incorporated into the EA by reference.

The drawdown results contained in both of the CDM reports were developed from a detailed numerical groundwater flow model of the Santa Fe region, using the most recent data available at the time and incorporating a rigorous and comprehensive model calibration process for drawdown in the Buckman wellfield area. The stream depletion results contained in the CDM report were developed from the numerical groundwater flow model used by the OSE in their administration of water rights in the region.

Regarding discussions of the fissures visible near the Buckman well-field at the March 2003 EBTAG meeting, as the comment notes, scientists are presently studying this further since the cause of the fissures is unknown.

Response to Comment # 7-2:

Thank you for your comment on the March 7, 2003 EA. The EA devotes a considerable amount of effort to quantify and evaluate potential impacts to private wells located within the County and in the general vicinity of proposed Buckman Wells 10-13. Please refer to the discussion in the EA in Section 3.2 on pages 25-26 and 28-31, including Tables 3.1, 3.2 and 3.4, Section 3.8.2 on pages 53-54, and on page 57 including Table 3-10.

Response to Comment # 7-3:

The construction and operation of Supplemental Buckman Wells 10-13 is an emergency action to help alleviate current and near-term water shortages. Limitations on pumping and the requirement to offset stream depletions are conditions that the OSE may impose. The City acknowledges that they cannot speculate as to what the final action will be with possible designation of the area by OSE as a Critical Management Area. The final action will be guided, not made, by the OSE.

As discussed in the last paragraph on page 10 of the March 7, 2003 EA, in Section 2.2.2, if the Buckman Direct Surface Diversion is authorized and on-line in 2007, it is the City's intent to significantly scale back production from the entire Buckman well field (including the Supplemental wells). Depletion of the flow in the Rio Grande, Rio Pojoaque and Tesuque Creek will continue after 2007, as discussed on pages 29-31 of the March 7, 2003 EA. However, as discussed on pages 31-32 of the March 7, 2003 EA, the OSE will require all future depletions caused by the Supplemental Buckman wells to be fully offset so that there will be no net effect on these river systems.

The projected impacts of the Supplemental Wells #10-13 alone are summarized in line 4 of Table 3-8 on page 53 of the March 7, 2003 EA. Based on these findings, the incremental effects of the Supplemental Wells are minor and are not expected to have an adverse effect on County wells.

Response to Comment # 7-4:

- The OSE will require that senior water rights will not be impaired. In addition, the City will make all reasonable efforts to mitigate impacts to junior water rights.
- The City has analyzed the proposed action to address the need to protect all rights to the aquifer. In any NEPA document, the task is to look at existing legislation and master plans to determine how they interact with the effects of the proposed action.
- As described in Sections 2.2.2 and 3.8.2 of the March 7, 2003 EA, it is the City's plan to operate the Supplemental Buckman wells as an emergency drought protection supply. If the Buckman Direct Surface Diversion is authorized and on-line in 2007, the average use of the Buckman well-field as a whole will be reduced significantly in normal precipitation years.

Response to Comment # 7-5:

- In compliance with NEPA the City of Santa Fe provided a public scoping meeting on the Buckman Supplemental Wells EA that was open to the general public including nonprofit organizations with interests in protections of ways of life and environmental justice. The public scoping meeting was held at the Santa Fe Public Library from 6:00 p.m. to 8:30 p.m. on Monday November 18, 2002. The meeting was advertised in the Legal section of the Santa Fe New Mexican newspapers on two Fridays, November 8 & 15, 2002. A three-column width by 4-inch length display ad was run in the Journal North newspaper on Thursday, November 14, 2002, and in the Los Alamos Monitor newspaper on Wednesday, November 13, 2002, and Sunday, November 17, 2002. A public service announcement was made daily on public radio station KUNM, which reaches the entire Santa Fe and Los Alamos areas. Phone calls and emails were made to people who attended the public site tour for the proposed Buckman Direct Surface Diversion project. Copies of the display ad ran in the newspaper were distributed on Friday, November 15, 2002, in the communities of Tierra Nueva, Tierra do Oro, and La Mariposa. The presidents of the neighborhood associations for these three communities were contacted by phone and notified of the meeting. Administrative staff of Las Campanas were also notified by phone. The EA was also made available electronically on the BLM Taos Field Office web page at: http://www.nm.blm.gov/tafo/buckman_4_wells/buckman_4_wells_index.html.

- Consultations and coordination activities were also conducted with various federal, tribal, state, and county agencies in addition to individuals in the project area.
- NEPA does not require that the EA list those individuals or entities that attended the public scoping meetings. The EA does list agencies, tribes and individuals who required coordination or who received consultation letters informing them of the proposed action and requesting a reply regarding any concerns they may have.

Response to Comment # 7-6:

- The City of Santa Fe has applied for an amendment to existing BLM permit NM 18720 (water pipeline easement). The project area is located on lands managed by BLM in Township 18 North, Range 8 East, sections 20, 28, and 33 and Township 17 North, Range 8 East, section 3. This area lies approximately 10 miles northwest of the city of Santa Fe and 6 miles southeast of the existing Buckman well field, which is located within BLM's Taos Resource Management Plan. There is no Santa Fe Resource Management Plan.